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EDITORIAL COMMENT

Many of you have taken advantage of our re-inking ribbon service, we also provide a refill service for your ink-jet printer cartridges. The charge for re-inking black ribbons in a cartridge is \$3 per ribbon and \$4 per order return shipping. This is quite a savings over the cost of new ribbons. The cost of re-inking ink jet cartridges is \$5 per cartridge plus \$4 per order for return shipping. So don't throw those ribbon or inkjet cartridges away. Do yourself and the planet a favor have them re-inked.

In this issue we say a fond farewell to Dave Knarr, who has submitted his last article for CNPC. As the owner of Micro Systems Dave and his wife supported the Tandy 1000 user community with products, advice, know-how and a sound reputation of friendliness that was unparalleled in the industry. We will miss his input, but wish him every success with his new business ventures.

Now that winter is quickly closing in on us we will all, probably, be spending many more hours indoors with our computers. We hope you will spend some of this time sending in articles about your computing experiences and sharing that experience with other readers. We also would like to hear from you. What you would like to see in CNPC; would you like to see more articles on the Internet and the use of modems and E-mail? Or more articles on how others use their software to get more productivity. Or more articles on technical subjects like how to upgrade your computer?

ACRONYMPHOBIA

by David P. Miller

RGB, TTL, MDA, HERC, CGE, EGA, VGA, XGA: are you confused by these terms and what they signify? Have you had an experience with a failing monitor or video card and been unsure as to what was compatible with your existing display system? Have you wanted to upgrade your display but were unsure as to what was available or desirable?

Don't feel as if you are the only one; this subject has become increasingly confusing over the years and many people ask the same questions. A customer for whom I recently installed a new display system had already given up and said: "I don't care, just make it work!"

The terms mentioned above are the acronyms for various display system specifications defined as follows:

MDA -	Monochrome Display Adapter
HERC -	Hercules (tm) monochrome graphics
CGA -	Color Graphics Adapter
EGA -	Enhanced Graphics Adapter
VGA -	Video Graphics Array
XGA -	Extended Graphics Adapter

The remaining two are methods of communicating video data to the monitor:

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RGB - Red, Green, Blue
analog signals

TTL - Digital color information

RGB is most often encountered with CGA display systems and 'RCA' plugs (see below). HERC is named after the Hercules (tm) monochrome graphics adapter, which allowed high resolution (720 x 480) graphics on an original monochrome monitor. This adapter was so popular that it became a standard.

The various specifications were designed and released, and provide increasing resolution and color display capabilities, in the order listed. Display capabilities are described in terms of picture elements (called 'pixels'), which are simply the name for the smallest dot that can be displayed for any given display mode; and number of colors possible.

An indication of the general class of display system on a computer can be gained by examining the end of the cable that connect the monitor to the computer, or the connector on the computer that this cable attaches to. A connector with two rows of pins is either MDA, CGA, or EGA; a connector with three rows is VGA or XGA. An 'RCA' type plug with a circular shell and a center pin is a CGA composite video connector.

Some compatibility frequently exists between the MDA, CGA, and EGA, but an EGA display plugged into an MDA adapter card (if it works) will only display monochrome, as will a monochrome monitor plugged into an EGA adapter. An EGA monitor plugged into a CGA adapter will only display the number of colors and resolution that CGA is capable of (see below). The EGA connector pinouts are:

- 1=Ground
- 2=Secondary Red
- 3=Red
- 4=Green

5=Blue
6=Intensity or Secondary Green
7=Mono Video or Secondary
Blue
8=Horizontal Control
9=Vertical Control

MDA uses pins 1 and 6 through 9 (2 is grounded, 6=Intensity, 7=Video), and CGA uses all pins but 2 (which is grounded) and 7. For this reason, the monitor connectors for MDA and CGA monitors will frequently be missing the unused pins, which allow the adapter to recognize (or use by default) the screen that is connected. For example, a monochrome display plugged into an EGA adapter will have pins 3-5 missing and the color attributes will be lost, leaving only the monochrome video signal, which turns a pixel on or off.

Generally speaking, it is not a good idea to connect a monitor to an adapter for which it was not designed. XGA is a specification that refers more to the operations available from the video controller card than to a particular class of monitor.

SO WHAT DOES ALL THIS MEAN?

If you need to replace your monitor and are examining the used market (garage sales, etc.) you will most likely encounter MDA, CGA, and EGA monitors, and monochrome, HERC, CGA, and EGA cards. This is because the most value for the price on the new market is in VGA adapters and monitors, and computer owners upgrading from the three mentioned above will almost certainly opt for the VGA standard.

When replacing components of your display system, it is wise to remember that new VGA adapters are available from about \$60.00 on up, and 14-inch monitors from \$240.00 on up. It would therefore not make sense to buy a replacement EGA monitor for

\$350.00 when you could replace the entire display system, and obtain higher resolution and color capabilities, for a lower price.

Still, it can be beneficial to shop the garage sales to replace a failing component with a monitor or adapter left over from someone else's upgrade if the price is right. By asking the questions "Does it work?" and "Is it color?", and examining the connector, you should be able to get a good idea of whether a monitor or adapter will work on your system.

WHAT ABOUT 'MONOCHROME VGA'?

Monochrome VGA was developed as a low-price display that provided high resolution. This type of monitor works with a standard VGA adapter and provides the resolution of a color VGA monitor. The adapter 'thinks' it is controlling a color monitor (usually with up to 64 colors) but the colors are represented in shades of grey. The picture quality is generally better than most color VGA monitors, and the price is (and has always been) about \$100.00 for the monochrome monitor. Since a standard (color) VGA adapter is used, one can upgrade to a color monitor at a later date without replacing the entire display system. However, I do not recommend this approach, since a color VGA monitor is only about \$140.00 more, and once the upgrade is accomplished, the monochrome monitor is virtually impossible to find a home for.

-David P. Miller



pfs:file TO/FROM PROFESSIONAL FILE

A CASE OF EXCEPTIONAL TRANSPORTABILITY

by Harold J. Hendriks

WORKING IN TWO DIFFERENT WORLDS

Many of us who have been using and working with personal computers for ten or more years are now living and working in two different worlds, the Model 4 World and the MS-DOS PC World. We have boxes upon boxes of Model 4 data diskettes loaded with word processing files, spreadsheet files, database files, etc. Many of these files contain valuable and important text and data which we would like to be able to use with the programs that we run on our MS-DOS PC computers.

Likewise, we have used our MS-DOS computers to create files that contain text and data that we occasionally want or need to use with programs that we run on our TRS-80 Model 4, 4P or 4D computers.

However, a wide "gulf" separates the Model 4 World from the MS-DOS PC World. The "gulf" exists because MS-DOS computers do not use the same processor, DOS and disk format structure as are employed by our Model 4 computers. Fortunately, several of the "bridges" which span the "gulf" between the Model 4 World and the MS-DOS World are two-way "bridges".

Some files can cross the "gulf" and exist and function successfully in either of the two worlds, while other files are more provincial and cannot exist and function in a foreign processor/DOS world. Program files such as word processing programs, database programs, spreadsheet programs, etc. cannot function in a computer world that is foreign to them. A Model 4 spreadsheet program, for example, will find MS-DOS to be a totally

alien and foreign world and vice versa.

Likewise, spreadsheet files created on a Model 4 computer cannot function successfully on an MS-DOS PC and vice versa. Database files created on either one of the two systems can not, with one exception, as far as I know, function successfully on the other system.

On the other hand, ASCII text files created by most word processing programs and/or text editors, and some data files, especially data files in an ASCII format, can cross the "gulf" between the two computer Worlds and exist and function successfully in the other World.

BRIDGES ACROSS THE GULF

For those ASCII text files and those data files that can exist and function in a foreign computer World, there are two "bridges" by which these files can cross the "gulf" which separates the Model 4 and the MS-DOS Worlds.

One such "bridge" is an RS232 serial connection between the two computers. This "bridge" requires the use of a null modem on one end of the serial cable connecting the two computers and the use of communications programs on each computer.

Several articles on transferring files by way of an RS232 connection have appeared from time to time in past issues of "Computer News 80" and "Computer News PC". The User's Manuals for the two computers also provide guidance on using the RS232 "bridge" between the two computers.

The RS232 "bridge" is not an easy bridge for most people to use. If you are using a Model 4, 4P or 4D computer, David Miller's MS-UTILITIES is a better and a much easier "bridge" to use to bridge the gulf between the Model

4 World and the MS-DOS World. MS-UTILITIES, which is inexpensive and easy to use, is a godsend to those of us working in the two worlds. This reliable and useful program can be obtained from Computer News.

Except to explain that there are two ways to "bridge" the "gulf" between the Model 4 World and the MS-DOS World, the principal emphasis of this article is not about the "bridges".

ASCII TEXT FILES

Almost every word processing program, be it a Model 4 program or an MS-DOS program, either directly creates ASCII text files or can convert their native word processing files and save them as ASCII text files. Likewise, most word processors, in either of the two computer worlds, can import or load ASCII text files.

MS-UTILITIES can quickly and easily copy ASCII text files on TRS/LS-DOS 6.3 formatted diskettes to equivalent ASCII files on MS-DOS formatted diskettes, and vice versa. Consequently, ASCII text files can easily cross the "gulf" that separates our two computer worlds and can exist and function successfully in either world.

ASCII DATA FILES

Almost every database program, be it a Model 4 program or an MS-DOS program, can extract data from selected fields in selected records and save the selected data in the form of either a "Carriage Return" or a "Comma" delimited ASCII data file.

MS-UTILITIES can quickly and easily copy such ASCII data files on TRS/LS-DOS 6.3 formatted diskettes to equivalent ASCII data files on MS-DOS formatted diskettes, and vice versa. Consequently, ASCII data files can easily cross the "gulf" that separates our two computer worlds and can

exist in either world.

Most, if not all, MS-DOS database programs can import and use "Carriage Return" and/or "Comma" delimited ASCII data files. Thus it is possible to extract selected data from most Model 4 database files, transport the ASCII data file over to the MS-DOS platform and import that data into an MS-DOS database file.

Unfortunately, no Model 4 database program, as far as I know, can import data in the form of an ASCII data file. Consequently, while it is possible to extract data, in the form of an ASCII data file, from an MS-DOS database file and then transport that ASCII data file to the Model 4 platform, it is not possible to import the data in the ASCII file into any model 4 database file.

pfs:file/PROFESSIONAL FILE TRANSPORTABILITY

As was clearly pointed out in an article, "Professional File, a Review", by the CNPC Staff, "Computer News PC", July-August 1993, Model 4 pfs:file data files can be transported over to the MS-DOS platform and the transported file can be loaded directly into Professional File on the MS-DOS computer and used as is by the Professional File program. Although the Model 4 pfs:file data files are not ASCII files, it is not necessary to convert the Model 4 pfs:file data file into an ASCII data file in order to transport the file over to the MS-DOS platform and program.

MS-UTILITIES can be used on the Model 4 to copy pfs:file data files on TRS/LS-DOS 6.3 formatted diskettes to equivalent data files on MS-DOS formatted diskettes. The pfs:file data files thus copied to the MS-DOS disk format can be loaded directly into Professional File on the MS-DOS computer and used as is by Professional File.

While it is known that Model 4

pfs:file data files can be easily transported to the MS-DOS platform and be used as is by Professional File on an MS-DOS computer, it is not generally known or appreciated that MS-DOS Professional File data files can just as easily be moved from the MS-DOS world to the Model 4 world and be used as is by pfs:file on the Model 4 computers.

MS-UTILITIES can be used on the Model 4 to copy Professional File data files on MS-DOS formatted diskettes to equivalent data files on TRS/LS-DOS 6.3 formatted diskettes. The Professional File data files thus copied to the Model 4 disk format can be loaded directly into pfs:file on the Model 4 computer and used as is by pfs:file.

The quick and easy two-way transportability of pfs:file/Professional File data files is an exceptional case of transportability between the Model 4 and the MS-DOS worlds. I know of no other database or spreadsheet program in either the Model 4 world or the MS-DOS world with a "sister" program in the other world which is able to share their files back and forth between the two domains so easily.

Consider this very possible scenario. A volunteer membership chairman for a club owns an MS-DOS computer and uses Professional File on his computer. He uses Professional File to develop and maintain a club membership database file of names, addresses, telephone numbers, personal "info" etc. for the membership of the club. At some point in time the volunteer membership chairman has a change in employment which makes it necessary for him to move to a distant city.

Another member of the club volunteers to take on the job of membership chairman. But the new chairman owns a Model 4 computer and uses pfs:file. Fortunately, due to

the exceptional transportability of pfs:file/Professional File data files, it is not necessary for the new membership chairman to retype all the membership data into his pfs:file data file.

All that the new membership chairman needs to do is to use MS-UTILITIES to copy the Professional File data files on the MS-DOS formatted disks to equivalent files on TRS/LS-DOS 6.3 formatted disks and then load the copied data files directly into pfs:File on his Model 4 computer.

CONCLUSIONS

The quick and easy transportability of pfs:file/Professional File data files is a most exceptional case of transportability. Professional File and its "sister" program, pfs:file, are unique in their ability to "bridge the gulf" between the Model 4 world and the MS-DOS world and to share data files back and forth across the "gulf".

-Harold J. Hendriks

COMIC BOOKS ONLINE

Never a Dull Moment
by Rita Laws

It's called X-Files. You may know it as the files between W and Y, or as a TV show, but if you collect comic books, you know it's the biggest collecting phenomenon in years. The world's best-selling magazine, TV Guide, included a specially made 5 page X-Files comic in its July 15th issue. The same people who bring you Star Trek Conventions are gearing up for an X-Files equivalent. The mania has brought thousands of new collectors to the hobby—many of them through cyberspace. Everywhere you go on the Net, there is an X-Files buying and trading frenzy.

X-Files comics, based on the TV show about paranormal

investigations and made by Topps, debuted in January, 1995 with a typical comic cover price of \$2.50. Today, issue #1 is selling for \$45. to \$47., if you can find a first printing! The first printing of #2 is worth \$10. to \$15. Why? Some people think the Baby Boomers have finally discovered comic collecting, and that they prefer adult titles with realistic characters. Spiderman and Superman are still hot (the first Fantastic Four from 1961 is now worth \$13,000.), but adults like mature plots.

But even before X-Files, comic books were a hot collectible online. Both the Internet and the major online services all have plenty of activities for collectors. Called "books" by insiders, and rarely "comics", the action on the Net for book collectors is at both the newsgroup discussions and on the World Wide Web.

There are 22 different newsgroups with the word "comics" in them, but even after you delete those that deal with comic strips and alternative titles, there are quite a few left for the classic comics including alt.comics.image, alt.comics.batman, and alt.comics.superman.

On the Web, links come and go, but at this writing, the following were available. You can get a nationwide review of comic book stores at Comic Book Stores, URL <http://grove.ufl.edu/~jrm/usa>. The Comic Book and Comic Strip Page, <http://dragon.acadiau.ca/~860099w/comics/comics.html>. has lots of links to other sites. Fun 'n' Games is actually an email newsletter with comic and Marvel news and notices that you can subscribe to. Contact the site at <http://www.internet.com/com~sydney/maynews.html>. And Comics 'n Stuff is where you go to visit and vote for your favorite WWW comic sites: <http://www.missouri.edu/~c617145/comic.html>.

The major online services offer files, chat, and forums, but they also give the collector a means to buy, sell, and trade with the speed of email. One collector bought an X-Files #1 online at a service for \$27. and was offered \$40. for it a few weeks later. Marvel Comics' Wolverine, an X-Men title offspring, is also available, including the hot Wolverine #75 with a hologram on the cover.

Buying online is not as dangerous as it may sound- if you take common-sense precautions. Read the guidelines and precautions posted at trading forums- they are written by experts. Make sure you check the email references of the person you plan to send money or merchandise to. Any transaction is only as sound as the reputation of the person you are dealing with.

Compuserve has the Comics and Animation Forum, but for the hottest discussions, previews, and insider secrets, go COMICS PUB for the Comics Publishers Forum. They're all here, the online headquarters of Malibu, Marvel, Dark Horse, Topps, Tekno, Bongo, Archie, and more. This is the best forum in cyberspace for people who are interested in a variety of titles, and not just one type of book.

On Delphi Internet Services, check out the Custom Forum List at the main menu for the number of the brand new and officially sanctioned X-Files Forum. Number 052 will take you to another discussion group, The Comics Forum. Delphi also has fast and inexpensive access to the Net and the Web with good search tools to find cool sites.

Prodigy has lots of discussions on its two Collecting Concourse BBs, named 1 and 2. There is also a comprehensive Collecting Interest Group (Prodigy Web Page) at jump word WEB PAGES. Jump Tekno for the Tekno Comix Forum featuring titles by Sci-Fi names like

Leonard Nimoy and Gene Roddenberry. There are games, quizzes, contests, prizes, a store, and a sinister online guide, Neuro Jack, who can pop up at any moment.

America Online has Wizard World, named after the famous comic book price guide. It is a terrific resource for gauging the worth of items in your collection. You can also keyword DC for the DC Comics Forum, including comics based on the new movie, Batman Forever. Are you a future comic writer or artist? You can submit samples of your genius to DC on this forum. You could spend hours on the DC forum and not run out of things to do.

Everyone expects comic book collecting to grow in popularity. If you like to read, trade and collect, it is a hobby you might enjoy. If you have a modem, you don't have to look any further for resources and fellowship than your own computer.

-Rita Laws



Don't be chained to your computer downloading files. Order them from Computer News PC's Wyoming Software Library. Hundreds of programs already on disks - ready to run. Order your new Wyoming Software Catalog today. \$2 (S&H)

SECRETS OF THE 1000s

by David Knarr

Have you ever installed a serial board or modem, and then have the installation program tell you that it is not there? Well the first thing that you want to do is check the IRQ (interrupt) settings and the address setting for the card. Refer to the documentation that came with the board. You want to make sure that it is not conflicting with another board in the system. Once you are sure that everything is setup correctly, you can run the installation program again or run a diagnostic program to see if the system recognizes the new serial port or modem.

NOTE: Some diagnostic programs or a program that checks for the COM ports, may not see the COM port if there is a software problem somewhere.

Here is a quick way to see if serial ports or modem is being seen by the system at the hardware level.

At the DOS prompt type in the following:

```
DEBUG <enter>
-d 0:400 407 <enter>
```

NOTE: the system will respond with the "--" dash. The "0" are zero's.

The system will respond with a screen of information. Look across the FIRST line for the following entries:

F8 03 <-- This entry shows COM 1 is installed

F8 02 <-- This entry shows COM 2 is installed

F8 01 <-- This entry shows COM 3 is installed

F8 00 <-- This entry shows COM 4 is installed

If the debug test finds the COM ports with no problem, then

it is most likely not a hardware problem with the new serial board or modem. Start checking cables to the mouse or external modem, make sure the software is setup properly, etc.

Here is a tech tip for the intermediate thru the advanced user. Ever have a hard drive that fails to boot or format correctly. For example, you may find that after a power failure, while you were on the system or after a system lockup, that you can't boot from the hard disk. Even after you reformat the hard drive, it still won't boot. Then try this trick, you will need DOS 5 or higher. Run FDISK and delete all the partitions on the hard drive. Exit FDISK and power the system off. Turn it back on and boot from a DOS 5 or higher DOS disk. At the A> prompt, type in FDISK /MBR, this will reset the boot track on the hard disk. When you run FDISK /MBR, the system, after a few seconds the system will return to the DOS prompt. You may want to run the FDISK /MBR a second time, I always did. After it returns to the DOS prompt, turn the system off and wait for the hard drive to stop spinning. Boot the system from whatever DOS version that you want to install on the system. Proceed with running FDISK, without the /MBR and create your primary partition. Then run FORMAT C: /S. If you are using DOS 5.0 or higher, then use FORMAT C: /S /U. The system will now boot off of the hard disk.

With summer here, I want to remind you to watch the room temperature where the computer is. The room temperature may be 80 degrees, but the temperature inside the case could be 90 degrees or higher, since the motherboard, CPU, hard drives, etc, generates heat inside the case. Make sure you have plenty of ventilation and air flow around the computer. A common problem because of heat, is the computer will lockup. This can cause data loss or even damage to

the system. If you suspect a heat problem, remove the cover from the case and aim a small fan at the motherboard. If your lockups disappear, then you definitely had a heat problem.

Cold weather can also cause problems. Awhile back I had a call from someone in New England who was having a hard time booting his system in the morning. He said it would boot fine, if he left it on for about 30 minutes or if he would boot it in the afternoon. Sounds strange doesn't it? Well not really, after asking a few questions, I found out that the computer was in the basement, an un-heated basement. The computer was having a hard time booting due to the cold temperature in the basement. After the computer warmed up, it would then boot and run just fine. The reason for this was, the hard drive was having a hard time getting up to speed. But once it was warmed up to a normal temperature, it had no problems getting up to speed.

I want to depart here for a moment from the technical stuff and tell you about a group of people in North Carolina.

This past winter I had a call from a gentleman, Bill Martin, from North Carolina, he was looking for old Color Computers or parts for the Color Computer. (For those of you who don't know what the Color Computer is, it was a computer that Radio Shack made years ago. It was based on the 6809 chip from Motorola. This unit was made during the early 80's and came with either 4K, 16K, 32K or 64K of memory. Yes, 4096 bytes of memory, not 4 Megs!)

I was kind of surprised to talk to someone who was actively looking for Color Computers. We talked for awhile about the good old days of the Color Computer, but what was really interesting was, he was part of a small group in

North Carolina that had started up a Color Computer users group in 1993 and the group is still growing!

He explained that most of the members of the users group are retired engineers, with some hardware hackers and software wizards sprinkled among them. Most of them got interested in the Color Computer from when it was popular back in the early 80's.

One of the biggest appeals to the members is the low cost involved with the Color Computers. Right now the members are picking up the computers at yard sales, flea markets, auctions and from the newspaper for \$10 to \$25 per computer. They also have flyers out in a few of the Radio Shack stores, stating that they are looking for the computers or accessories for the Color Computer. Currently Bill is running a Color Computer only, hardware shop from his house, where he cleans up, repairs and recycles the Color Computer.

With several members being hardware hackers, they are producing products for the Color Computer again, such as floppy drive controllers, real time clocks and hard drive controllers.

What makes this truly amazing, is the fact that here is a small group of people who are bringing back a very old computer from the grave. The group has over 4000 programs in their library for both Color Computer DOS and OS9. For those of you who don't know what OS9 is, it is a multiuser operating system that will run on the Color Computer.

By now some of you are probably saying, what does this have to do with us? Well, I wanted to show you, that know matter what system you have, there will always be someone or some group offering support for your system. I have heard the complaints from a lot of you about how Tandy doesn't

support the 1000's anymore. So what! You have places to get support, such as Computer News PC, American On-Line, Compuserve, Internet, etc.

So you can see there is support out there for the 1000's. If there is none in your area, think about starting a small users group to exchange ideas and to help each other. Bill told me that when they started the Color Computer group, they had 3 members. Which was fine for them, as it kept everything informal. They would meet at each others house, have a cook out, and share programs and ideas about the Color Computer.

So, instead of complaining about the support for your system, follow these peoples example and be enterprising and start doing something about it. Computer News PC, has the books and videos that will tell you all about the 1000's. It's up to all of you now.

I also wanted to say good-bye to all of you. This is my last article in the computer world. After 12 years of being involved with the Tandy computers, I have moved out of the computer field altogether. I have however, dug out my old Color Computer stuff and I am getting involved with that, strictly as a hobby. I have enjoyed knowing and talking to you over the years.
-David Knarr

REMINDER

If your mailing label ends in 95/09 this is your last issue. Time to get your renewal in the mail.

MOVING ?

Remember to send us your change of address.

WRITECHK/BAS PROGRAM

by Robert M. Knowles

(See program listing number one.)

I wrote this program in basic for the modal 4 and now I've written it in qbasic for ms dos, you should have very little trouble with it, if you're using it just to practice you should have no trouble at all because you don't have to adjust it to fit the check your using, but if you are using the program you should still have no trouble, it was made to be adjusted, you can use any size fanfold check with it you like.

In most basics they use line numbers so you can use goto line number, but not in qbasic, in qbasic there are no line numbers, then how do we keep control of the program? We must be able to move around in the program, if we can't move around in a program we're going to have an awful time writing programs. We can move around in a program by using labels, instead of goto line number we put labels with a colon and tell the program to goto label.

To start with we have who wrote the program and what the program is for. Then screen 9, we don't have to have it but I like to put it in, if you want to see why then leave it out, then color 1,7 and again we don't need it but the screen looks better with a little color, then cls to clear the screen, if you don't think we need it? Leave it out and see what happens, maybe we don't need it. Then we have a label, try not to forget that when we have a label we must have a colon, now we have an input line which means we want the user to type something to save in the variable to be used latter, in this case we want the name of who the check is going to and we get a little information telling us what to do when we're finished.

Then a variable to store the

name in, then an if line, we told you what to do when you finish now we have tell the computer, this is a very interesting line, sometimes you will write if a\$="END" then end. When we want to end we type 'end' and it doesn't work and we think "what is wrong now"? We forget that we told the computer to look for 'END' in upper case and we enter 'end' in lower case and it won't work. The best way to do this is to use 'or' and tell the computer to look for upper or lower case, you can't tell the computer (if a\$="END" or "end") it won't work. You must do it right, like this: (if a\$="END" or a\$="end" then end).

The next three lines are input lines, we did all that saving data now its time to tell the computer what to do with it, now we have to move all that data from the computer to the printer, if you use print in the file menu the computer will be glad to print a copy of the program.

Then how do we get the computer to print the data we put in variables? We use lprint. When we type run by pressing F5 the computer reads each and every input line, saves the data in a variable and when it comes time to lprint it looks to see what you want sent to the printer. Next we have lprint string\$(2,10), lprint means, send this to the printer.

String\$ is a line of something, 2 is the count and 10 is line feed, which will put us on the line for the date, then we have lprint tab(70) date\$. We know what lprint means, tab(70) will move us over to the right place for the date, then we have date\$ which will take the date from the computer and put it at tab(70). Then two lprints to move us down to the right place for the name, tab over 20 tab stops and print a\$ which as we said would be the name. On the same line we move over to tab(70) then, using "\$\$,###.##" we lprint b, which is the amount. We must do it this way

because if we don't we won't get .00. If you have cents it will print them but if you don't have cents it won't print .00 and it doesn't look good without them.

Then we jump down to the last line which is goto again, this is where a label is a very handy thing to have, you might have more than one check to write so you must be able to tell the computer to do it again, not having line numbers you can see that a label is just the thing to have.

-Robert Knowles

into their IBM PC-compatible computer.

If you don't have a laser printer, faxSCANNER lets you use your existing fax machine as a substitute -- and with the new plain paper fax machines available today, you can print near laser quality at a bargain price.

If you already have a laser printer with limited memory, faxSCANNER will allow you to print full graphic pages on your fax machine without adding printer memory! Also, in many cases, printing out an image to your fax machine takes a lot less time than laser printing.

PORTABLE USE

There is another big advantage to using faxSCANNER if you travel and use a portable or laptop PC. A special module, a telephone line cord, and some software make up the full faxSCANNER for Windows package. Therefore, you can take your faxSCANNER on the road everywhere you go, since any standard G3 fax machine can become your scanner and printer.

The patented faxSCANNER hardware module (a telephone line simulator) is so small (1-7/8" x 2-1/4" x 7/8") it fits in your briefcase, purse, or shirt pocket! By simply using the telephone line cord to connect this module between a fax machine and a computer's fax/modem, you can scan one or more pages of printed material into your computer's memory and save the image as a file to be used with your favorite desktop publishing program. Or, you can print any file from someone else's computer.

OPTICAL CHARACTER RECOGNITION

To save you the time and effort of typing text into your computer, a page with text can be scanned and then converted from an image to computer-readable text

by an OCR (optical character recognition) package. "faxSCANNER for Windows - International Edition" (\$69.95) integrates Caere's award-winning "AnyFax" OCR technology that recognizes fonts from 6- to 72-points in 11 languages! It produces a text file in ASCII or any of 62 formatted text files for use with your favorite word processing application, including WordPerfect and MS Word. If your OCR needs are more critical, SVA Software offers "TypeReader" from ExperVision at great savings.

A HAPPY MARRIAGE

faxSCANNER for Windows is actually a combination of a small hardware module from SVA Software and a special configuration of a leading fax/modem program called "BitFax Easy," from Bit Software. This lets you send, receive, and manage faxes with the click of a mouse.

So that you can take full advantage of your fax/modem, "BitCom," a full-featured communication program, is also included in this package. BitCom lets you log on to on-line services, computer bulletin boards, and Internet providers, and supports the most popular file transfer protocols, such as ASCII, Xmodem, Ymodem, Zmodem and Kermit.

SYSTEM REQUIREMENTS

To use BitFax Easy for Windows you need:

- * An IBM PC or compatible computer (386, 486 or Pentium)
- * Windows 3.0 or 3.1 running in 386 Enhanced Mode
- * Hard drive with at least 5 Mb of free disk space
- * 2Mb of RAM (4Mb to run AnyFax OCR)
- * A fax/modem that can send and receive faxes (A fax board with the EIA TR-29 Class 2, or EIA

578 Class 1, or Intel CAS, or Sierra Send Fax Standard)

- * A mouse or equivalent input device (optional)

DOCUMENTATION

The perfect-bound 6.75- by 9-inch 288-page BitFax Easy User's Manual is clearly printed with many screen illustrations. It is divided into two sections, each with its own index and appendices: "BitFax Easy for Windows," and "BitCom for Windows." The size of the Manual is an indication of the many, many features of these programs, and the great detail of explanation. I suggest you scan through it, then use it for reference for those activities you'll use.

A 6- by 7.5-inch 14-page staple-bound booklet is specifically aimed at using faxSCANNER for direct fax-to-computer scanning and printing. While it was adequate, I found myself confused in several places. I'll save you this confusion further on in this article by describing the simple step-by-step procedures I used to scan and print.

faxSCANNER MODULE INSTALLATION

The only hardware you'll need, besides a fax machine and a computer fax/modem, are the special small black "module" and the telephone line cord that are included with faxSCANNER. Before you can use the module, you must install the included 9-volt battery into the faxSCANNER module. Slide open the panel and place the battery inside the faxSCANNER module, first snapping the connector to the battery terminals. Replace the slide panel.

After properly installing the battery do a simple self-test: connect the phone plug of your faxSCANNER module into its own phone jack to check battery power and internal functions. If the red LED (light emitting diode) turns on, your faxSCANNER hardware module has passed the test. If the light does not turn on, try another

battery. If the light still does not turn on, you'll need to call the manufacturer, SVA Software (address and phone at end of article) for more assistance.

HARDWARE INSTALLATION

Figure 1 shows how the module is connected between your fax machine and computer's fax/modem. No telephones are used. Use the telephone cord provided in the faxSCANNER package to connect the fax/modem "Line" jack to the faxSCANNER module. The black cable from the faxSCANNER module plugs into the "Line" jack input of the fax machine. After making the necessary connections, if your fax/modem is external, be sure to turn it on.

The six-foot phone cord that comes with faxSCANNER has a common four-wire modular phone plug on each end. If your fax machine and computer fax/modem are further than about 6 feet apart, either use a longer phone cord, or connect additional lengths using female modular couplers to join them. My computer and fax are about 18-feet apart, but I found no problem using three 6-foot phone cords and two couplers.

CHECKING YOUR SYSTEM

Before installing BitFax Easy for Windows, make sure your fax/modem is installed and configured according to the manufacturer's instructions. Determine which COM port your modem is using. An easy way to do this is to go into the Windows "Terminal" program (usually in the Accessories Group), click on "Settings" in the menu bar, then click on "Communications." In the "Connector" box, the highlighted COM number is the COM port to which your modem is connected. During installation, you may need to tell BitFax Easy which COM port number your modem is using.

You can test your modem with

the Windows "Terminal" program. Make sure your telephone line is connected to the modem for this test, and make sure the modem is turned on if it is an external modem. On the "Terminal" program menu bar, click on "Phone," then click on "Dial." Type YOUR OWN PHONE NUMBER and click on "OK." The modem should dial your number and show BUSY on the screen as the modem hangs up.

BITFAX EASY AND BITCOM

The regular use for BitCom is for communications between modems using the telephone lines. This is explained in detail in the BitFax Easy User's Manual. Similarly, the regular use for BitFax Easy is to send, receive, and print faxes using fax/modems and the phone lines, also explained in the Manual.

The faxSCANNER version of BitFax Easy, however, has the special capabilities of scanning and printing using a fax machine and fax/modem -- no telephone lines are used.

The remainder of this article will only cover only these special applications of BitFax Easy, since the booklet provided does not include sufficient detail. At least, it took me considerable effort to get things working properly -- so, if you decide to get this package, be sure to refer to this article!

INSTALLING BITFAX EASY

BitFax Easy includes an easy-to-follow installation program, which is run from your Windows desktop. The installation includes both BitFax Easy for Windows and BitCom for Windows. It will also install and activate the special BitFax Easy printer driver, as well as create a Windows program group, and place the BitFax Easy and BitCom icons into it. The whole installation takes less than five minutes.

HOW TO SCAN WITH BITFAX EASY

Connect the fax machine and fax/modem as shown in Figure 1. If your fax/modem is external, be sure it is turned on. Also, make sure your fax machine is turned on. (Note: Some fax machines are always ON if they are plugged into a wall socket.) **IMPORTANT!** Set your fax machine to the "Fine" or "Hi-Resolution" mode. For high definition images and gray scale, set it to "Half-Tone" if your machine has such a setting. Place the sheet to be scanned in the fax document feeder.

To start BitFax Easy, open the BitFax Easy program group (if it is not already open), and double-click on the "BitFax Easy" icon. The BitFaxEasy window will appear. Double-click on the "Receive Fax" icon, then click on "Receive." The computer screen will show the modem going through some testing for about eight seconds.

When the "Operation" box says "Wait for fax call," click on "Job," then click on "Manual Receive." This activates the scanning process. When the "Response" box says "OK" and you can hear the modem sending, go to your fax machine, lift its handset (or press the HOOK button) and then hit the START button. After a short period of "handshaking," the document will feed through your fax machine as a filename appears -- the six-digit date and time with a .bfx extension. When the sending is complete, the fax/modem disconnects.

VIEWING THE RECEIVED FAX

Once the scan is completed, you can view the received fax. Click on "Cancel" in the "Receive Fax" box. After a brief disconnect function, you're back in the "BitFax Easy" box. Double-click on the "View/Print" icon and you'll find yourself in the "View Fax" screen. Click on "File," then click on "New" (or just click on the file folder icon below File on the menu bar) and

you'll see the "Open File" box. Click on the filename you just scanned, easily identified by the clever date/time name. Click on "Open" and your scanned image appears after a short delay.

Bear in mind that your screen resolution is not as good as the 200 x 200 dot resolution of the scan, so the view may not look anywhere as good as the actual file. To prove this, you can print this file on one of your regular printers (a laser is best), or print it on the fax. However, the procedures are different.

PRINTING A SCANNED .bfX IMAGE TO YOUR REGULAR PRINTER

To print a scanned .bfX image on your regular printer, double-click on "View/Print" and then click on "File" in the "View Fax" screen menu bar. Then click on "Printer Setup" and select the printer you'll be using. You may want to set some printer parameters by clicking on the "Setup" button. When you have selected the printer, click on "OK."

From the "File" menu click on "Print." Make sure your printer is turned on and then click on "OK." After several minutes, your printer will deliver the file you had scanned in. You'll probably be surprised at how good it looks compared to the screen, especially if you used a laser printer for the printing -- although it is slow.

In addition to an Okidata OL-400 laser printer, I tried an Epson LX-800 9-pin dot-matrix printer for the output, and I was pleasantly surprised. Although it was not as sharp as the laser, it was a lot faster, and perfectly readable!

PRINTING A SCANNED .bfX IMAGE TO YOUR FAX MACHINE

When printing a scanned image to your fax machine, you can print

any .bfx file rather directly with faxSCANNER. Other files can also be printed, but only from their Windows application. To print a DOS file, you must first bring it into a Windows application. Except for pure ASCII text files, you'll probably find printing to your fax machine takes considerably less time than to a regular printer.

To print a file you scanned in as a .bfx file, you'll use the "BitFax Easy" window. Double-click on the "Transmit Fax" icon, which takes you to the "Transmit Fax" window. Double-click on "Job," then click on "New," which takes you to the "Dial Fax (Transmit Fax)" window.

Make sure the "Manual Transmit Fax" box is checked (but none of the other boxes below it, for now). Next click on "Attachments" to bring up a window that shows filenames. For now, double-click on the filename you just scanned in, and it will appear in the adjoining "Attachments" box. Now click on "OK" and you'll be back in the previous window. Click on "Start/Fax" and a "Transmit Status" window will pop up. When this changes to a "Manual Transmit Fax" window, click on "OK" to start transmitting. Go to your fax machine, press the HOOK button, then the START button, and in a few seconds the fax and computer will handshake and the fax will print.

PRINTING NON-.bfx FILES TO YOUR FAX

To print anything but a .bfx file to your fax, you must be in a Windows application. For text, you can import your text file into Window's WRITE. For graphics files, you can import most formats into Window's PAINTBRUSH. You then click on "File" from that application's menu bar, then "Print Setup" to make sure the BitFax Driver is selected, then click on "Print" and the rest is much like before -- except that with PAINTBRUSH in the "Print"

window you can change the 100% in the "Scaling" box to make the image smaller.

For text files, I suggest you stick with your regular printer, since the fax machine printing is not as good.

SAVING THE SCANNED IMAGE

To save the received scanned image as a graphic file, while in the "View/Print" window, first view the image by clicking on "File," click on "New," then select the filename (which must be a .bfx file!) When the image is on screen, click on "File," click on "Save As," and select a desired format (.PCX, .BMP or .DCX) at the lower left of the screen. Now go to the upper left of the "Save As" window and type in the name you want for this image, with the chosen format extension. Click on "Save" and the viewed image will be saved in that format. (Note: Even if you change the size on the screen with the "View" menu, the image will be saved full size.)

HOW TO USE CAERE'S OCR IN BITFAX EASY

One of the very big advantages of this whole fax scanning process is that you can save yourself a lot of typing. If you want to enter text into your computer from a book, magazine or newspaper, scan it in using faxSCANNER, then use an OCR program to convert it to a regular text file.

As already stated, the faxSCANNER for Windows - International Edition" includes Caere's "AnyFax" OCR. To use this, go to the "BitFax Easy" menu and double-click on the "View/Print" icon. Click on "File," click on "Open" and in the "Open File" window double-click on the .bfx file you want to convert to text.

You're now back in the "View Fax" window with the scanned image on the screen. Now click on "File" and then click on "Recognize Fax."

This takes you to the "OCR Options" window, where you can select from 62 text file formats and 11 languages! The default language, as you might suspect, is English.

Click on "Recognize" and watch as the program puts a reduced size of the image on the screen and scans it three times -- first in light gray, then dark gray, then black -- then saves the file. This function of BitFax Easy requires a minimum of 4 megabytes of RAM, so if you have problems running it, close any other Windows you may have open.

To view the converted file, go to the application where you saved the file, open the file, and edit it there. I was expecting lots of errors here, but was pleasantly surprised. So long as the document was scanned using the "Fine" fax mode, the recognition was about 98%! I was, frankly, VERY pleased. Although some cleanup was required in my word processor, it was a lot less effort than typing in the text.

If you would like to improve the accuracy of the OCR, contact SVA Software to purchase "TypeReader" from ExperVision at a special low price.

SOURCES

You may find faxSCANNER for Windows at your local software outlets. If not, order from:

SVA SOFTWARE, Inc.
4401 Ponce De Leon Blvd.
Coral Gables, FL 33146
Phone: (800)457-4433
Fax: (305)446-9928

Prices: faxSCANNER Standard-\$49.95 faxSCANNER International with Caere OCR - \$69.95 TypeReader OCR - \$99

Include \$5 shipping/handling per order. FL residents add tax.
-Fred Blechman

Talking to Your Printer

by David P. Miller

When Tandy first offered home computers through their stores, they contracted with Centronics Corporation to build a printer with the Radio Shack brand. Since Centronics created the design for printer connections that eventually became the 'de facto' parallel printer interface standard, one might expect that this interface would be the same for proprietary designs to prevent third-party suppliers from Radio Shack's market, or because of IBM's identical approach for the same reasons, two interface standards exist for TRS-80 owners to consider. I will call these the 'Tandy Printer Interface' and the 'Original IBM Printer Interface.'

The only real difference between the two is the placement of the INIT line on the 36-pin connector (see Table). Each of the two types of computer have a different connector at the computer end, but both must use the Centronics 36-pin male connector at the printer end because almost all printers have always been and are currently manufactured with a Centronics female 36-pin connector. Some newer printers provide a DB-25 connector instead, which not only causes confusion, since this type of connector is the 'de facto' standard for Serial Port use, but creates more difficulty for users of non-IBM-type computers that may wish to use such a printer with another system.

However, all is not lost; by understanding the nature of the problem and being willing to modify a relatively inexpensive printer cable, users of any computer system that provides a parallel printer port can connect nearly any printer. This is because the operation of the various signals are fairly well defined.

As can be seen by the diagram, pin 1 is the STROBE. This pin is 'active low'; it is kept high (+5

Volts D.C.) when inactive, or not used; and goes low (0 to 3 Volts D.C.) when the computer has loaded a byte representing a character or code and wants the printer to accept it. Pins 2-9 carry the 8 bits of the character or code; pin 10 allows the printer to indicate that the character or code has been accepted (active low). Pin 11 allows the printer to inform the computer that data is being processed and it cannot currently accept more (BUSY when high); pin 12 is used to tell the computer that the printer is out of paper (PAPER OUT when high); and pin 13 to indicate that the printer is selected as opposed to off-line and unavailable (SELECT when high). Pin 32 is used by the printer to indicate ANY error; which not only allows a computer to detect any of several types of errors by checking only one signal, but also allows a printer to signal a problem that is not covered by any of the specific error signals. Such errors might be Out of Ribbon for printers using a film type ribbon, paper jam, and so on.

Pins 19 through 29 are connected to ground and intended to provide a return path for the first 11 pins using twisted pair wire, as are several of the remaining pins, which are usually considered to be undefined as to purpose. In actual practice, all of the grounded pins are usually connected electrically and grounded at one point. Other undefined pins are often left unconnected at the manufacturer's discretion, as they have no purpose.

The remaining pin of importance is the INIT signal pin, which also turns out to be the single major source of incompatibility between the Tandy and IBM interfaces. Referring again to the Tandy Interface chart, it can be seen that this signal is carried on pin 31; on the IBM Interface chart it is located on pin 33. Further, pin 33 on the Tandy Interface is connected to ground, while pin 31 on the IBM interface is not

connected at all. Again, the diagram is intended to be representative; printer manufacturers connect the unused pin to ground or make no connection as they choose.

When the INIT signal is low, it causes most printers to go through a power-up reset sequence. This sequence clears out any old printer codes, clears characters from the internal buffer, and changes all printer settings to the default, or the settings indicated by the sense switches normally used to set options. If the INIT signal never goes high, the printer simply becomes locked in a never-ending reset cycle and will not respond. Therefore, if the INIT pin is not properly connected, most printers will either continually reset or just sit there and do nothing.

The solution is to identify the type of interface your printer uses and match it to the type used by your computer. A diagram similar to that presented with this article is almost always found in the printer manual, and the two interfaces used by Radio Shack and IBM-Compatible computers is well defined, as shown in the diagrams.

Once having identified the interfaces used, it becomes a rather simple matter to modify a printer cable to connect the two and obtain satisfactory operation.

Making a cable to connect a printer using a Tandy Interface (DMP printers, for example) to an IBM-Compatible computer is a simple matter; get an 'assembled' (as opposed to a 'molded') printer cable, which has a plastic shell housing the connector which can be taken apart.

Carefully pry up the plastic tabs that hold the shell together just far enough to disassemble the shell. Be very careful, as the cable manufacturer did not really intend for you to do this and the tabs are

easily broken off, in which case you will have to wrap the shells with tape to reassemble the shell when you finish.

Examining the soldered connectors on the back of the Centronics plug, you will see several pins soldered together with one or two cables attached. Turning the Centronics plug over and looking inside, you will see tiny numbers molded into the connector

that indicate how the pins are organized. Locate pin 31 and use a soldering iron to remove any excess solder that electrically connects it to neighboring pins. If a cable is soldered to pin 31, move it to one of the other pins that are bridged by solder.

Now use the soldering iron to remove the cable from pin 33 and move it to pin 31. Reassemble the plastic shell on the connector, and you should have a cable that will allow use of a Tandy DMP-style printer with your IBM-Compatible computer.

Modifying a cable for connection between a Tandy computer and a printer with an IBM Interface can be slightly more difficult. If you can find a Tandy printer cable with round cabling rather than ribbon cable, a 34-pin card-edge connector on the computer end, and an assembled shell on the Centronics end, simply follow the above procedure in reverse. Move the cable from pin 31 to pin 33 and bridge pin 31 to the other grounded pins.

To modify a ribbon-style printer cable, such as that normally used on a TRS-80, you must separate a wire and reposition it before clamping the connector in place. In this case, the best course to take is probably to obtain the parts for the new cable at from Computer News 80, and buy a small "C" clamp at a hardware store. You will also need a few metal plates about 1/2" by 2", and at least 1/4" thick. Further

requirements are a fair amount of manual dexterity and a reasonable amount of patience. Parts required are a 34-position card-edge connector #70-007, a 36-position printer connector #70-006, and 36-conductor flat ribbon cable. [CN80 stocks 34-conductor cable and you can use it just the same as 36-conductor cable, without having to sacrifice or cut the outer two conductors.]

Either end of the cable may receive the modification; I prefer the computer end, but will describe both changes.

1. ASSEMBLING THE 'OTHER END':

A. When modifying the computer end:

Attach the 36-printer printer connector to one end of the ribbon cable, making sure that the color stripe at the edge is aligned with pin 1 of the connector. To attach the connector, carefully assemble the various parts around the ribbon cable, sandwich the whole assembly between the two metal plates mentioned above, and use the C-clamp to press the parts together. Contact with the wires in the ribbon cable is made when the back of the connector presses the cable down on the sharp blades inside the connector.

If you make an obvious mistake, carefully disassemble the connector, use a sharp pair of scissors to cut off the end of the cable with the tiny holes you just made and try again. Dangers here are that the connector parts are easily broken during disassembly and your cable just got a little shorter.

B. When modifying the printer end:

Follow the procedure outlined above, but attach the 34-pin card-edge connector instead. Examine the way in which the cable

will attach to the printer after assembly; the cable should exit directly to the rear of the printer when properly plugged in, with pin 1 of the connector farthest from the center of the computer. Before assembling the connector on the cable, trim the two wires from the side opposite the color stripe; they will not fit in the 34-pin connector.

2. ASSEMBLING THE MODIFIED END:

A. When modifying the computer end:

Counting from the color stripe, which is #1, or from the opposite side of the cable, which is #36, locate wires #33 and 31. Mark them with a felt-tip marker. Carefully cut or tear the plastic skin on each side of the two marked wires for about two inches to separate them from the rest of the cable. Clip off wire #33 with a pair of fingernail clippers and trim the two wires opposite the color stripe, as they will not fit into the 34-pin card-edge connector. Lay the cable into the connector, being careful to align the color stripe with the pin marked as "1" on the face of the connector. Move wire #31 into the position formerly occupied by wire #33 and clamp the connector into place as described above.

B. When modifying the printer end:

Follow the procedure outlined above, but do not clip off the outer two wires, and attach the 36-pin Centronics connector.

-David P. Miller

(Editor's Note) When connecting older Radio Shack Printers to a PC-Compatible computer check both the printer manual and your computer's manual to be sure that you have a proper cable configuration. See diagram on the following page.

PIN#	TANDY INTERFACE	IBM INTERFACE
1	Strobe	Strobe
2	Data 1	Data 1
3	Data 2	Data 2
4	Data 3	Data 3
5	Data 4	Data 4
6	Data 5	Data 5
7	Data 6	Data 6
8	Data 7	Data 7
9	Data 8	Data 8
10	ACK	ACK
11	Busy	Busy
12	Paper Out	Paper Out
13	Inverted Busy	Selected
14	Ground	N/C
15	N/C	N/C
16	Ground	Signal Ground
17	Chassis Gnd	Chassis Gnd
18	+5 VDC	+5 VDC
19-29	Data Return Gnd	Data Return Gnd
30	Ground	Ground
31	N/C	INIT
32	ERROR	ERROR
33	INIT	External Ground
34	N/C	N/C
35	N/C	N/C
36	N/C	Always Select

PRINTER CABLE CHART

WRITECHK/BAS PROGRAM LISTING NUMBER ONE by Robert M. Knowles

```

REM written by robert knowles 1994
REM this is for writing one check at a time
SCREEN 9
COLOR 1, 7
CLS
AGAIN:
INPUT "NAME(type end when done) "; A$
IF A$ = "END" OR A$ = "end" THEN END
INPUT "AMOUNT"; b
INPUT "WRITE OUT AMOUNT"; C$
INPUT "MEMO"; D$
LPRINT STRING$(2, 10)
LPRINT TAB(70); DATE$
LPRINT : LPRINT
LPRINT TAB(20); A$; TAB(70); USING "$$,###.##"; b
LPRINT
LPRINT TAB(12); C$
LPRINT STRING$(5, 10)
LPRINT TAB(8); D$
LPRINT STRING$(4, 10)
GOTO AGAIN

```

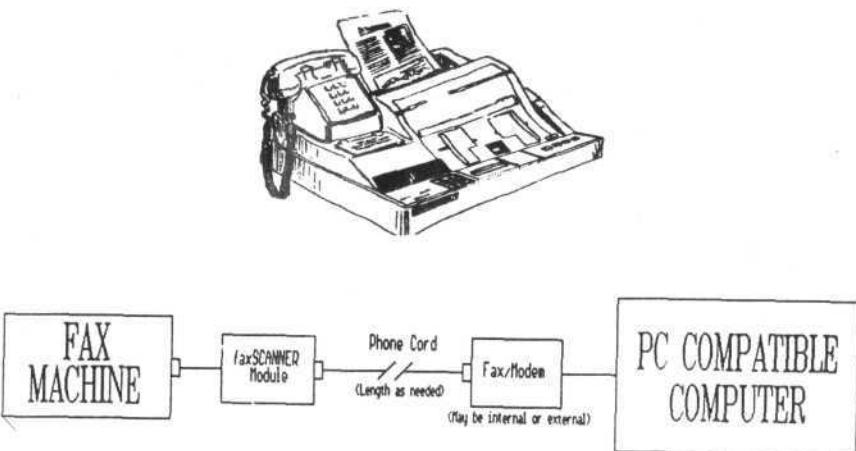
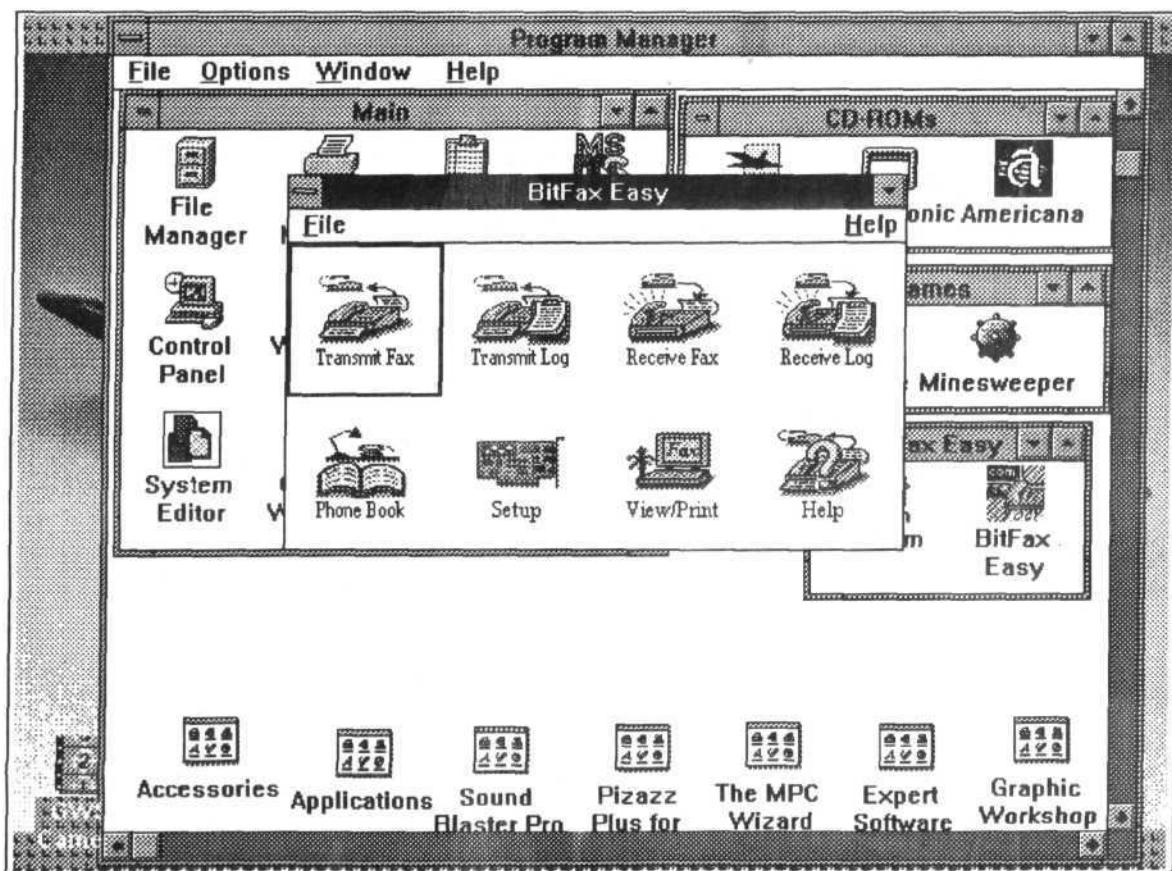
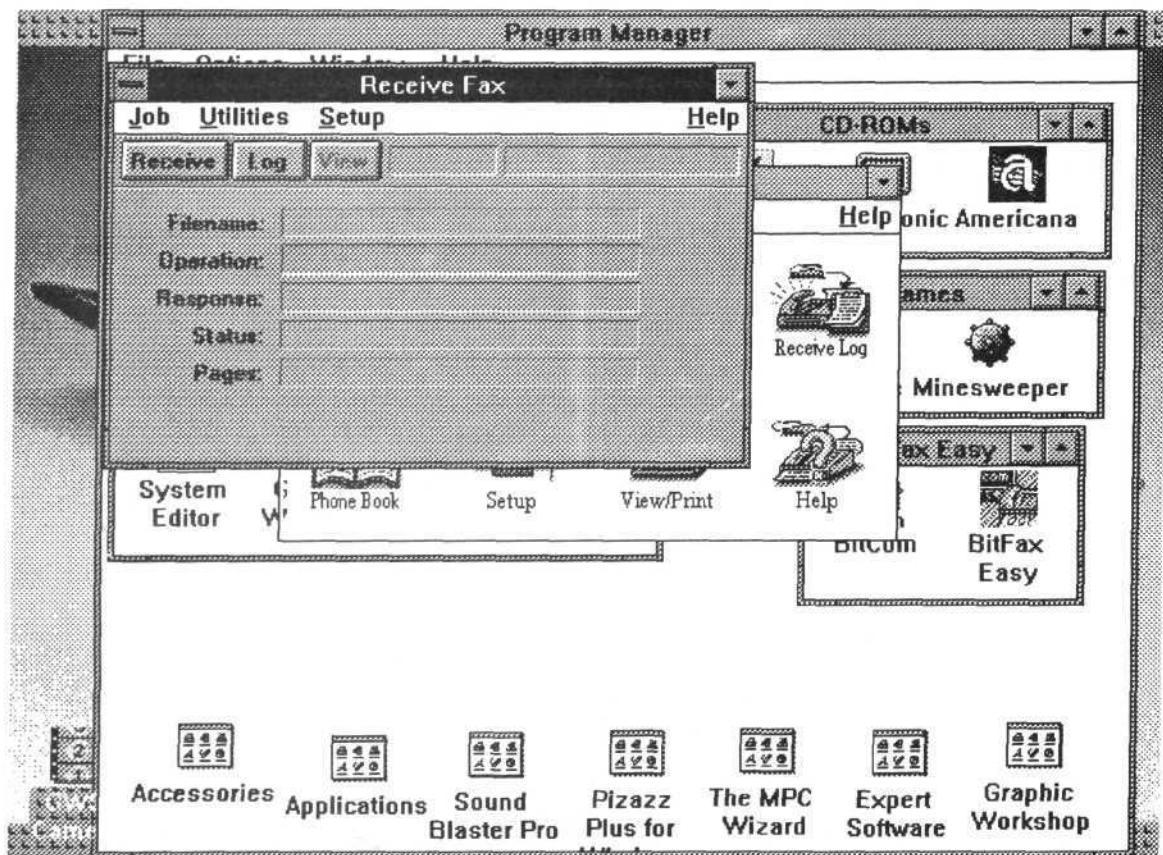


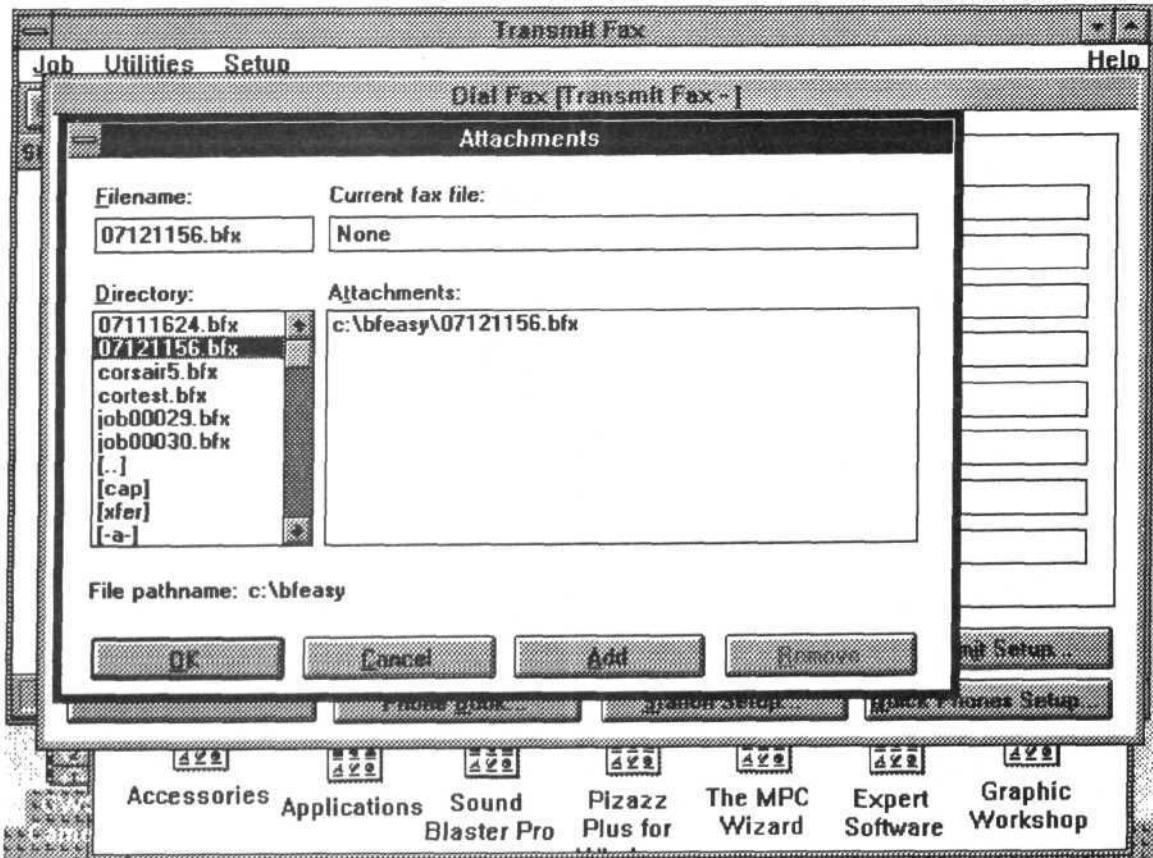
Figure 1 - Hardware Installation



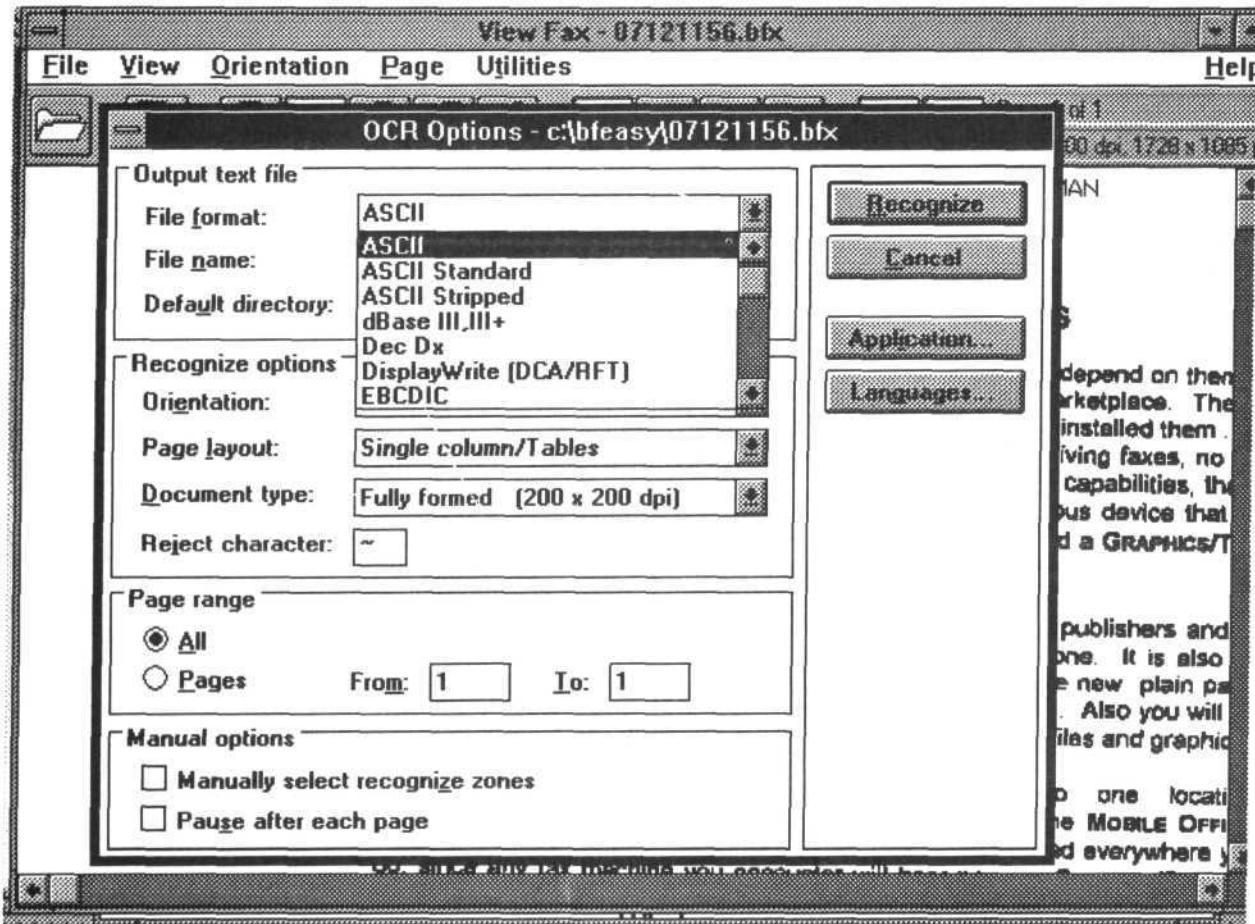
The BitFax Easy window offers eight options. Here "Transmit Fax" is selected.



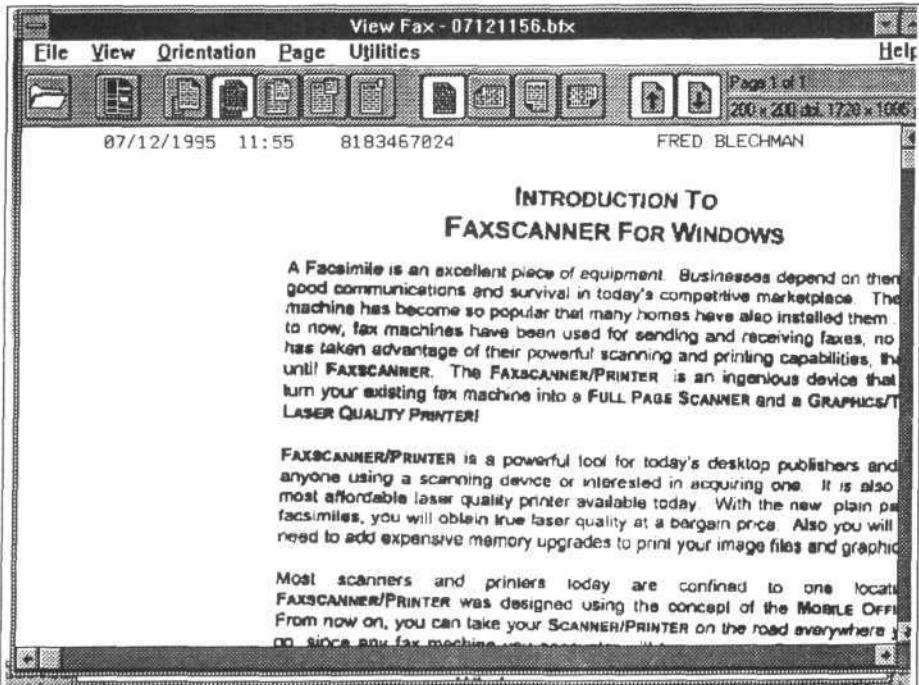
This is the screen you'll see when preparing to receive a document directly from your fax machine.



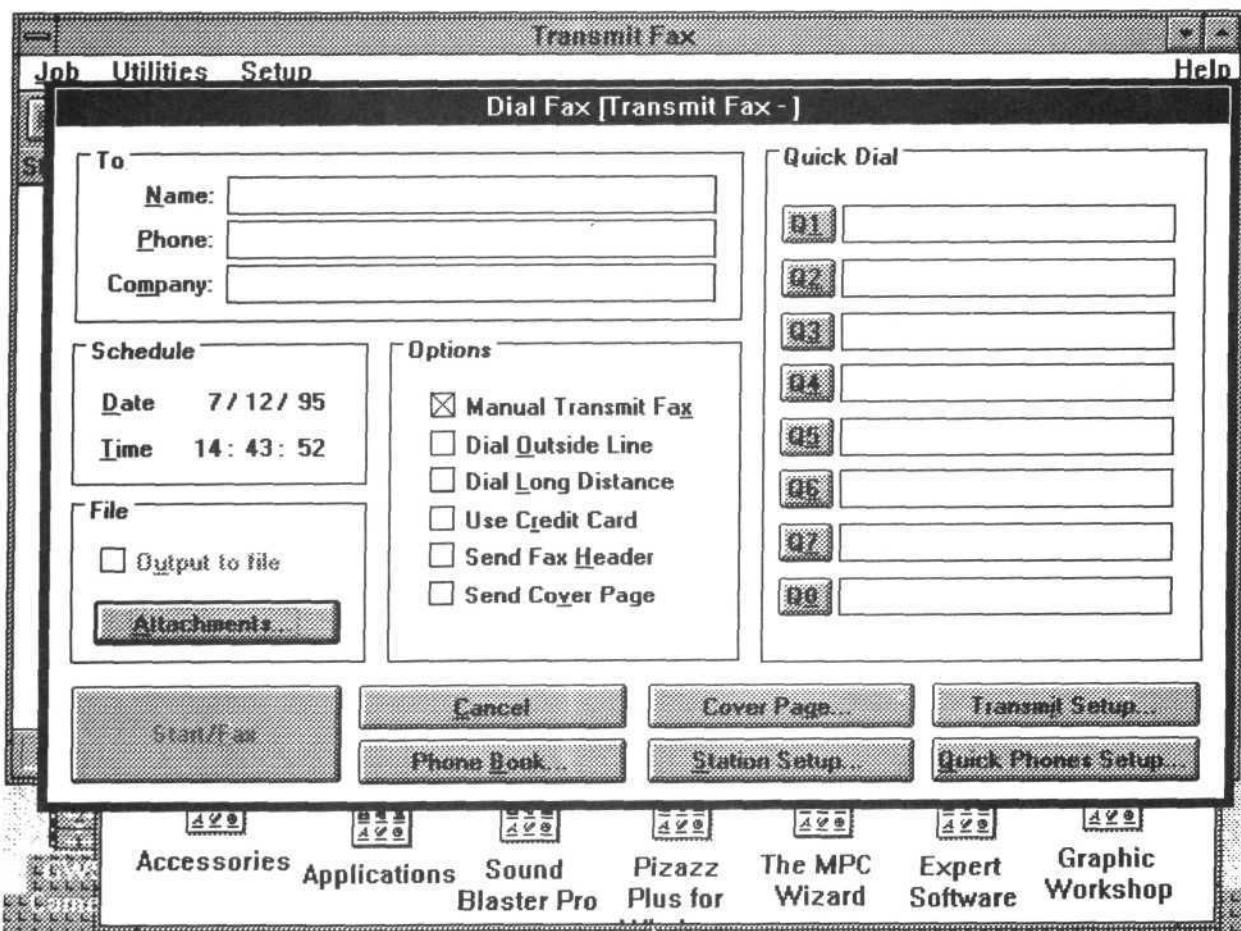
This is the screen where you select a previously-scanned file to be printed on your fax machine.



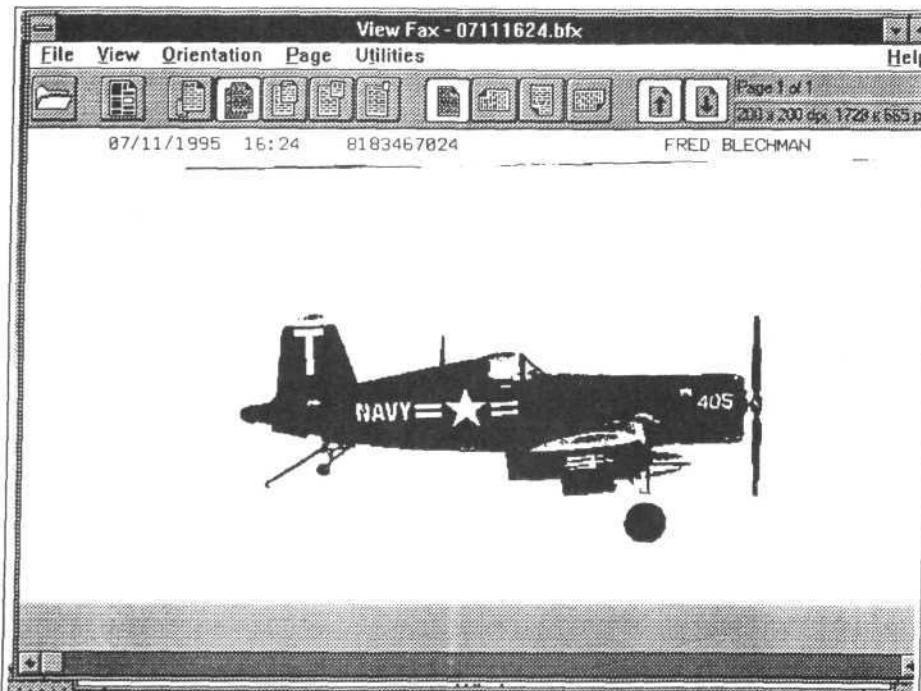
When selecting your OCR format, you have 62 different possible formats to choose from, as well as 11 languages.



This printed page was scanned into the computer from the fax machine using the "Receive Fax" function. It was later converted to word-processor text format using OCR.



To use your fax as a printer, be sure you're in the "Manual Transmit Fax" mode.



The author of this article flew this plane, a Navy F4U-5 Corsair, in Fighter Squadron Fourteen in the early 1950s. This photo was scanned into the computer from the fax machine using the "Receive Fax" function.

Computer News PC Product Guide

PROGRAMS

PACK - MS-DOS Version BASIC Program Packer by David Goben.	\$ 18.95 (Z)
MS UTILITIES by David P. Miller Transfer files between TRS/LS DOS disks and MS-DOS disks. Format MS disks on a model 4.	\$ 30.00 (Z)
SAVE & GO by David Goben MS-DOS Directory Utilities (see Vol 3.1)	\$ 18.95 (Z)

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LP III, V	26-1414	CN1003	FABRIC REFILL	4.79	4.29
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LP VII, DMP 100	26-1424	CN1038	FABRIC CART.	6.00	4.50
DMP 110	26-1283	CN1005	FABRIC CART.	6.58	6.08
DMP130/130A /132/133/107	26-1236	CN1006	FABRIC CART.	6.40	5.90
DMP130/130A /132/133/107	26-1238	CN1007	FABRIC REFILL	5.00	4.50
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DMP 500	26-1482	CN1043	FABRIC REFILL	5.30	4.80
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DMP 120, 200	26-1489	CN1010	FABRIC REFILL	4.85	4.35
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DMP 430	26-1296	CN1044	FABRIC REFILL	5.60	5.10
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DMP 2120	26-2836	CN1018	FABRIC REFILL	7.90	7.40
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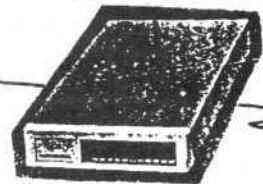
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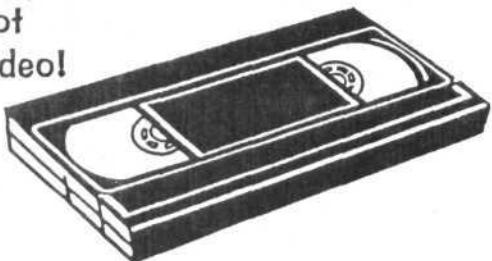
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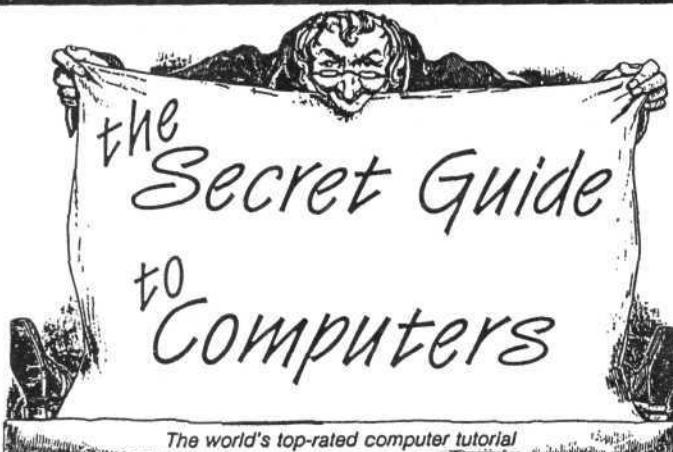
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